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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,207	11/30/2000	Dimitri P. Zafiroglu	RD8120USNA	2829
23906	7590	07/29/2004	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			GOFF II, JOHN L	
		ART UNIT	PAPER NUMBER	
		1733		
DATE MAILED: 07/29/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

IV

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/727,207	ZAFIROGLU, DIMITRI P.
	<b>Examiner</b>	<b>Art Unit</b>
	John L. Goff	1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 11 March 2004.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1 and 3-27 is/are pending in the application.

4a) Of the above claim(s) 14, 15 and 17-27 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1,3-13 and 16 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 05 March 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9/11/03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## **DETAILED ACTION**

1. This action is in response to the amendment filed on 3/11/04. The previous objections to the drawings and specification have been overcome. The previous 35 USC 112 rejections have been overcome. In view of applicants amendments and arguments the previous rejections using Reinhardt (U.S. Patent 2,261,096) and Hackler (U.S. Patent 4,871,604) as primary references are withdrawn, it being noted new rejections are made below.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Specification pages 1-2 and WO 00/52446) in view of Reinhardt (U.S. Patent 2,261,096) and the background of Kajikawa et al. (U.S. Patent 5,843,087).

The admitted prior art discloses a process for bonding an array of pile loops onto a backing to form a carpet. The admitted prior art teaches the process comprises applying a binder (e.g. low-melting thermoplastics such as polyolefin, polyester copolymer, polyamide copolymer, etc.) to the surface of the backing, stitching the array of pile loops onto the surface of the backing with a stitching thread, and then heating the backing with the binder and array of pile loops thereon to melt the binder causing it to flow and concentrate in the root portion of the pile loops, between the stitching thread and pile loops, and near the surface of the backing (Specification page 1, lines 10-18 and Figures 6E and 6F and Page 36, lines 8-15 and Page 38, lines 10-12 and

37-38 and Page 39, lines 1-2 of WO 00/52446). The admitted prior art teaches an alternate process comprising stitching the array of pile loops onto the surface of the backing with a stitching thread, applying a liquid binder (e.g. low-melting thermoplastics such as polyolefin, polyester copolymer, polyamide copolymer, etc. dispersed in a liquid carrier) to the surface of the backing, and then heating the backing with the binder and array of pile loops thereon to melt the binder causing it to flow and concentrate in the root portion of the pile loops, between the stitching thread and pile loops, and near the surface of the backing (Specification page 1, lines 10-18 and Figures 6E and 6G and Page 39, lines 4-7 of WO 00/52446). The admitted prior art further teaches it is conventional after stitching for the carpet to undergo further finishing processes including scouring (Specification page 2, lines 18-21). The admitted prior art is silent as to mechanically flexing the backing with the binder and array of pile loops thereon while heating. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted prior art to incorporate mechanical flexing during heating as this was a well known and conventional technique in the art as shown for example by Reinhardt for benefits such as complete penetration of the binder.

Regarding the limitation requiring an amorphous binder, as noted above the admitted prior art teaches using low-melting thermoplastics such as polyolefin, polyester copolymer, polyamide copolymer, etc. as the binder. The admitted prior art does not specifically recite using amorphous binder. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the binder taught by the admitted prior art as modified by Reinhardt one that is amorphous as it was well known in the art to use an amorphous binder such

that in the event the binder combusts during use of the carpet the amount of fumes generated is relatively small as shown for example by the background of Kajikawa et al.

Regarding claim 10, scouring is a conventional technique as noted by the admitted prior art, and scouring is performed for removing oil and finish from the pile loops after tufting/stitching to increase the soil resistance of the carpet (the background of Gregg (U.S. Patent 3,864,079) is noted as evidence of this reason). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the scouring taught by the admitted prior art as modified by Reinhardt after stitching and before mechanical flexing as only the expected results would be achieved.

Reinhardt is directed to a method of applying an adhesive binder to a needled fiber backing wherein after applying the binder to the backing the backing undergoes mechanical flexing (e.g. by passing over staggered, heated rolls) to ensure complete penetration of the adhesive into the backing and the needled fibers (Figure 1 and Column 1, lines 23-30 and Column 2, lines 28-33). The background of Gregg discloses it is conventional in the art to scour carpet after tufting to remove oil and finish from the yarn of the carpet thereby increasing the soil resistance of the carpet (Column 1, lines 9-24). The background of Kajikawa et al. disclose it is conventional in carpet manufacturing to use an amorphous binder (e.g. amorphous polyolefin) such that in the event the binder combusts during use of the carpet the amount of fumes generated is relatively small (Column 1, lines 45-53).

4. Claims 3-9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Reinhardt, and the background of Kajikawa et al. as applied to claims 1 and 10 above, and further in view of Gerlach et al. (U.S. Patent 4,361,609).

The admitted prior art, Reinhardt, and the background of Kajikawa et al. as applied above teach all of the limitations in claims 3-9, 11, and 12 except for a teaching of heating the binder by immersing the backing in a liquid or passing steam over the backing, it being noted the admitted prior art is not limited to any particular technique. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the binder taught by the admitted prior art as modified by Reinhardt and the background of Kajikawa et al. using any well known and conventional technique such as by immersing the backing in a liquid, passing steam over the backing, passing the backing over heated rolls, etc. as all of these techniques were conventional, functionally equivalent alternatives in the art for heating a carpet backing with a binder as shown for example by Gerlach et al. wherein only the expected results would be achieved. Regarding claims 4, 5, 7, and 8, it would have been obvious to one of ordinary skill in the art at the time the invention was made to dry the backing after immersion in liquid or steam to remove any excess liquid as drying after immersion in a liquid, e.g. dyeing, was a conventional technique in the art as noted by the admitted prior art with it being further noted it would have been obvious to experimentally determine/optimize the drying conditions as a function of the dried carpet produced as doing so would have required nothing more than ordinary skill and routine experimentation.

Gerlach et al. disclose a carpet backing having binder fibers thereon wherein the fibers are bonded to the backing and each other by conventional heating techniques such as hot water, saturated steam, hot air, hot rollers, etc. (Column 3, lines 5-14 and Column 9, lines 41-48).

5. Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Reinhardt, and the background of Kajikawa et al. as applied to claims 1 and 10 above, and further in view of Hackler (U.S. Patent 4,871,604).

The admitted prior art, Reinhardt, and the background of Kajikawa et al. as applied above teach all of the limitations in claims 13 and 16 except for a specific teaching of using a binder in powder form having a particles size of 1 to 500 microns, it being noted the admitted prior art teaches applying the binder as a dispersion coating. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the dispersion coating taught by the admitted prior art as modified by Reinhardt and the background of Kajikawa et al. using any well known and conventional technique such as by dispersing a powder coating having a particle size of 25-100 microns in a liquid carrier as it was well known in the same art to form a carpet binder dispersion in this manner as shown for example by Hackler wherein only the expected results would be achieved. Regarding the melting point limitation, the admitted prior art teaches using a binder having a melting point above 80 °C and 25 °C below the melting point of the material of the loops, it being noted nylon loops a loop material disclosed by the admitted prior art melt at 120 °C, such that the limitation is met (Specification page 1, lines 19-32 and Page 36, lines 8-15 of WO 00/52246). In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize

the melting point of the binder as a function of the loop/backing bond strength as doing so would have required nothing more than ordinary skill and routine experimentation.

Hackler is directed to a thermoplastic adhesive binder powder used to strengthen carpet fiber bond points wherein the binder powder has a particles size of 25-100 microns and may be applied as a dispersion (liquid coating) (Column 2, lines 20-24 and Column 3, lines 21-24 and 36-40).

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tillotson et al. (U.S. Patent 3,821,066) in view of Reinhardt, MacIsaac et al. (U.S. Patent 3,722,442) and the background of Kajikawa et al.

Tillotson et al. disclose a process for bonding an array of pile loops onto a backing to form a carpet. Tillotson et al. teach the process comprises tufting a backing with an array of pile loops, applying a binder powder (e.g. thermoplastics such as vinyl polymer) to the surface of the backing, and then heating the backing (e.g. by passing over a heated roll) with the binder and array of pile loops thereon to melt the binder (24 of Figure 2) causing it to flow and concentrate in the root portion of the pile loops (4 and 6 of Figure 2) and near the surface of the backing (1 of Figure 2) (Figures 1 and 2 and Column 1, lines 7-11 and Column 2, lines 27-35 and 64-67 and Column 3, lines 30-35 and 51-57). Tillotson et al. are silent as to mechanically flexing the backing with the binder and array of pile loops thereon while heating. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tillotson et al. to incorporate mechanical flexing during heating as this was a well known and conventional technique in the art as shown for example by Reinhardt for benefits such as complete penetration of the binder. Reinhardt is described above in full detail.

Regarding the limitation requiring an amorphous binder, as noted above Tillotson et al. teach using thermoplastics such as vinyl polymer as the binder. Tillotson et al. do not specifically recite using amorphous binder, it being noted vinyl polymers appear to be amorphous. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the binder taught by Tillotson et al. as modified by Reinhardt one that is amorphous as it was well known in the art to use an amorphous binder such that in the event the binder combusts during use of the carpet the amount of fumes generated is relatively small as shown for example by the background of Kajikawa et al. The background of Kajikawa et al. is described above in full detail.

Regarding the limitation requiring stitching/tufting the array of pile loops onto the backing with a stitching thread, Figure 2 of Tillotson et al. appear to show securing the array of pile loops onto the backing with an unlabeled stitching thread such that the limitation is met. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to secure the array of pile loops taught by Tillotson et al. as modified by Reinhardt in any well known and conventional manner such as by stitching with a stitching thread as shown for example by MacIsaac et al. as only the expected results would be achieved. MacIsaac et al. are exemplary of the well known technique of securing an array of pile loops to a backing using a stitching thread (the Figures and Column 1, lines 3-7 and Column 3, lines 2-9).

7. Claims 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tillotson et al., Reinhardt, and the background of Kajikawa et al. as applied to claim 1 above, and further in view of Gerlach et al.

Tillotson et al., Reinhardt, and the background of Kajikawa et al. as applied above teach all of the limitations in claims 3-9 except for a teaching of heating the binder by immersing the backing in a liquid or passing steam over the backing, it being noted Tillotson et al. while suggesting heating passing over a heated roller are not limited to any particular technique. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the binder taught by Tillotson et al. as modified by Reinhardt and the background of Kajikawa et al. using any well known and conventional technique such as by immersing the backing in a liquid, passing steam over the backing, passing the backing over heated rolls, etc. as all of these techniques were conventional, functionally equivalent alternatives in the art for heating a carpet backing with a binder as shown for example by Gerlach et al. wherein only the expected results would be achieved. Regarding claims 4, 5, 7, and 8, it would have been obvious to one of ordinary skill in the art at the time the invention was made to dry the backing after immersion in liquid or steam to remove any excess liquid as drying after immersion in a liquid, e.g. dyeing, was a conventional technique in the art as noted by Reinhardt with it being further noted it would have been obvious to experimentally determine/optimize the drying conditions as a function of the dried carpet produced as doing so would have required nothing more than ordinary skill and routine experimentation. Gerlach et al. is described above in full detail.

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8. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tillotson et al., Reinhardt, and the background of Kajikawa et al. as applied to claim 1 above (for claim 10) and Tillotson et al., Reinhardt, the background of Kajikawa et al., and Gerlach et al. as applied to claims 3-9 above (for claims 11 and 12), and further in view of Gregg.

Tillotson et al., Reinhardt, the background of Kajikawa et al., and Gerlach et al. as applied above teach all of the limitations in claims 10-12 except for a teaching of scouring the carpet after stitching. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate in Tillotson et al. as modified by Reinhardt and the background of Kajikawa et al. and Tillotson et al. as modified by Reinhardt, the background of Kajikawa et al., and Gerlach et al. a scouring step, e.g. after stitching and before mechanical flexing, as scouring is a conventional technique for removing oil and finish from the pile loops after stitching to increase the soil resistance of the carpet as shown for example by Gregg. Gregg is described above in full detail.

#### *Response to Arguments*

9. Applicant's arguments with respect to claims 1, 3-13, and 16 have been considered but are moot in view of the new ground(s) of rejection. As noted above, in view of applicants amendments and arguments the previous rejections using Reinhardt and Hackler as primary references are withdrawn. Reinhardt is now applied only as exemplary of the conventional technique of mechanically flexing a carpet backing with binder thereon. Hackler is now applied only as exemplary of the well known use of thermoplastic binder materials having the claimed particle size.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff



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